FIG. 1

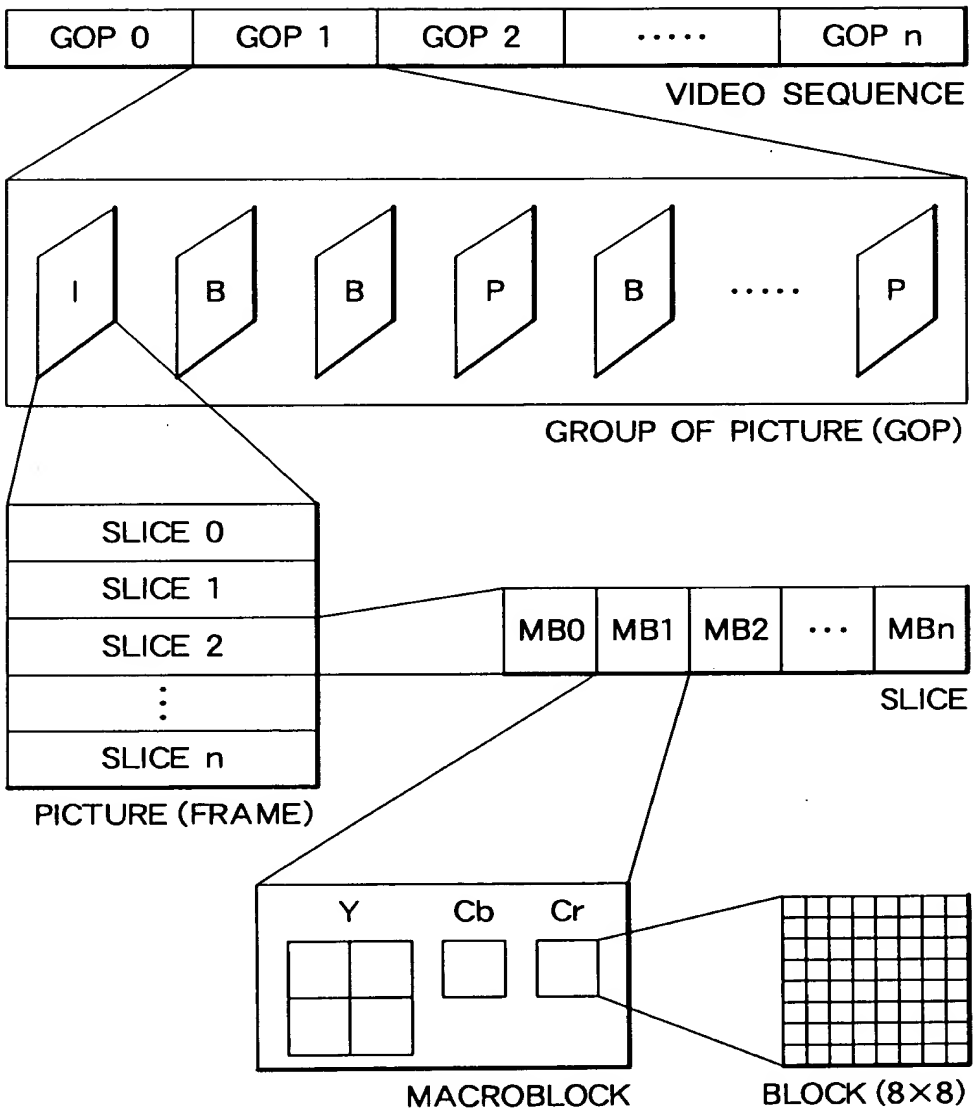

GOP 0
GOP 1
GOP 2
.....
GOP n
VIDEO SEQUENCE
I
B
B
P
B
.....
P
GROUP OF PICTURE (GOP)
SLICE 0
SLICE 1
SLICE 2
SLICE n
PICTURE (FRAME)
MB0
MB1
MB2
...
MBn
SLICE
Y
Cb
Cr
MACROBLOCK
BLOCK (8×8)

FIG. 2

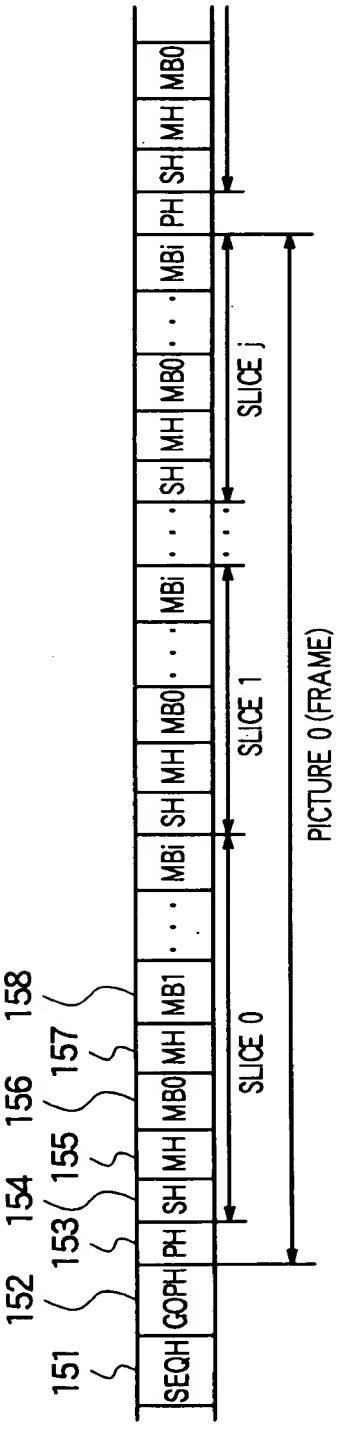

151
152
153
154
155
156
157
158
SEQH
GOPH
PH
SH
MH
MB0
MB1
MBi
SLICE 0
SLICE 1
SLICE j
PICTURE 0 (FRAME)

FIG. 3

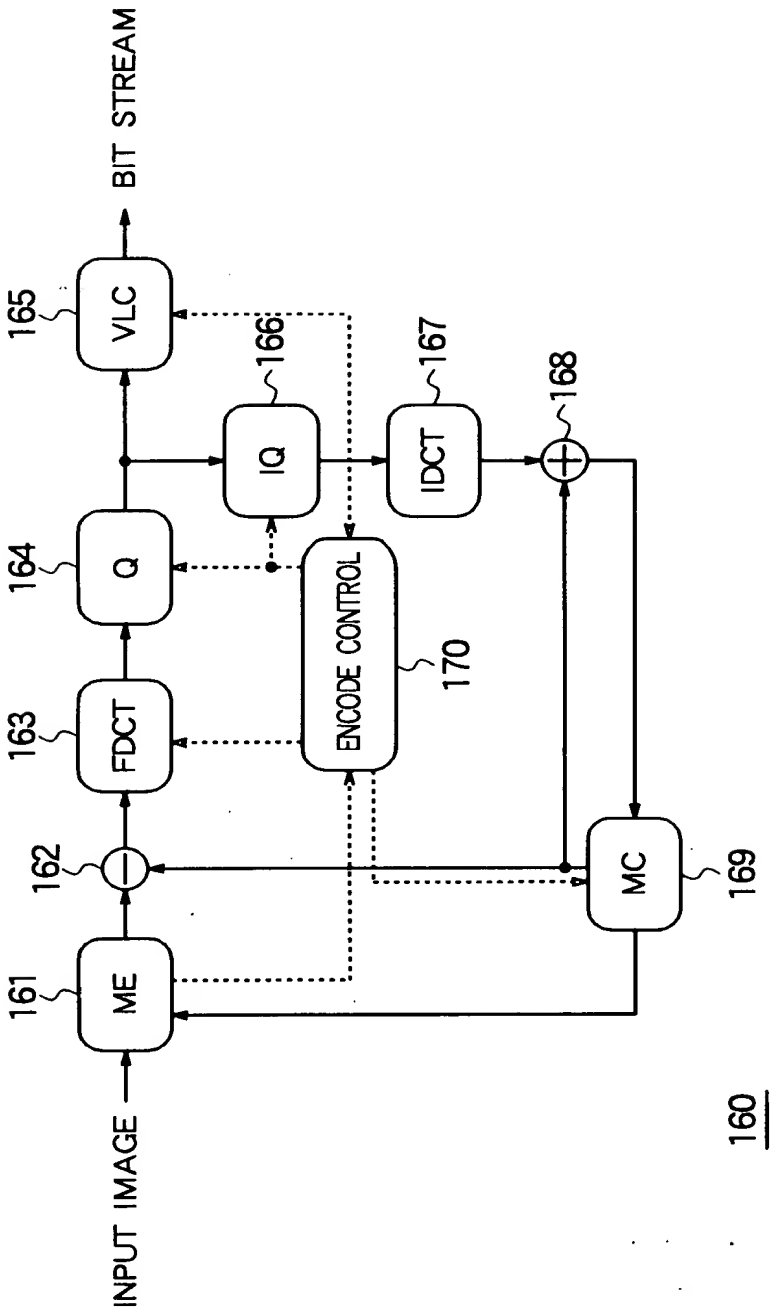

INPUT IMAGE
BIT STREAM
ME
161
162
FDCT
163
Q
164
VLC
165
IQ
166
IDCT
167
168
ENCODE CONTROL
170
MC
169
160

FIG. 4

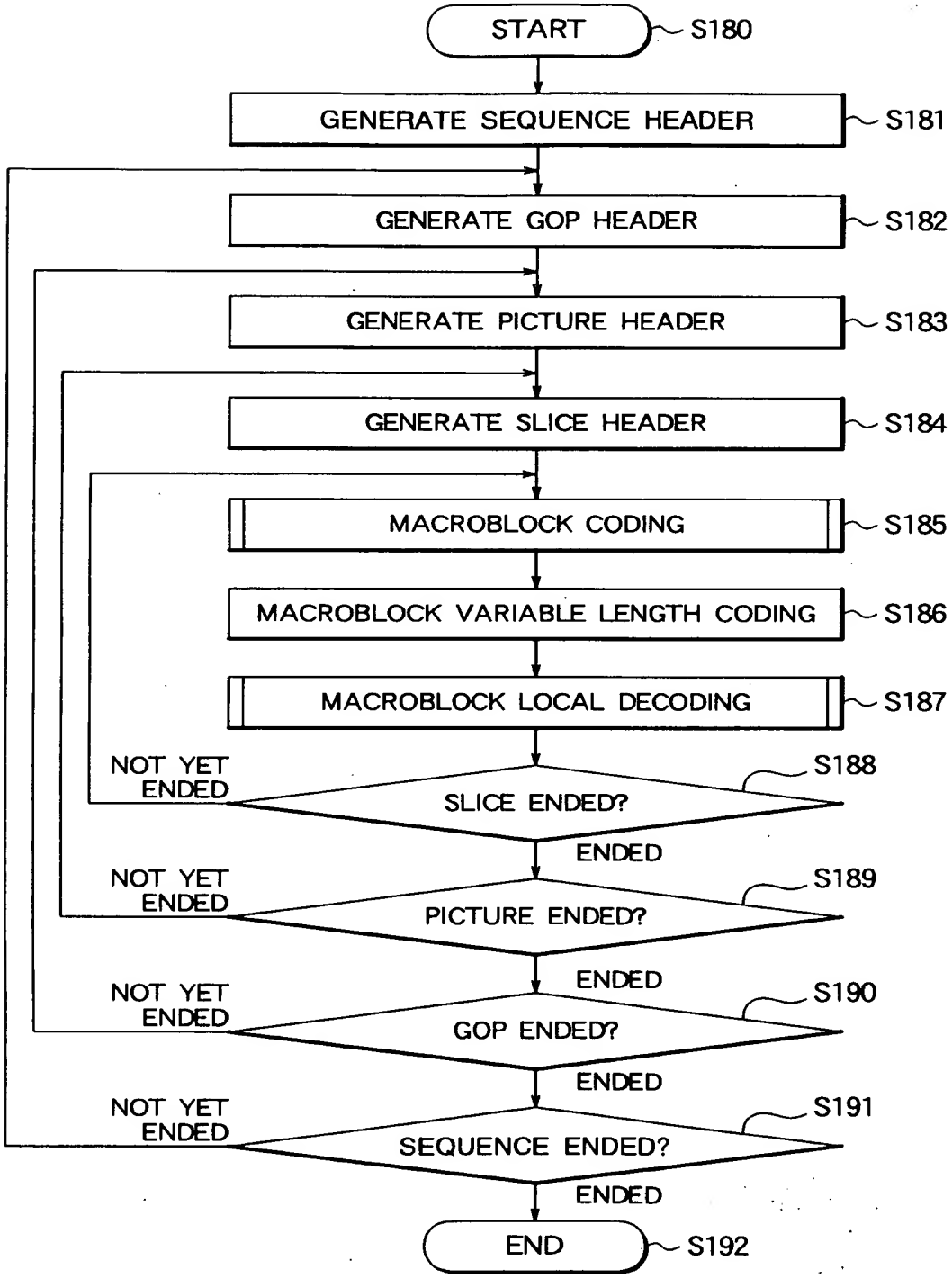

START
S180
GENERATE SEQUENCE HEADER
S181
GENERATE GOP HEADER
S182
GENERATE PICTURE HEADER
S183
GENERATE SLICE HEADER
S184
MACROBLOCK CODING
S185
MACROBLOCK VARIABLE LENGTH CODING
S186
MACROBLOCK LOCAL DECODING
S187
SLICE ENDED?
S188
NOT YET ENDED
ENDED
PICTURE ENDED?
S189
NOT YET ENDED
ENDED
GOP ENDED?
S190
NOT YET ENDED
ENDED
SEQUENCE ENDED?
S191
NOT YET ENDED
ENDED
END
S192

FIG. 5

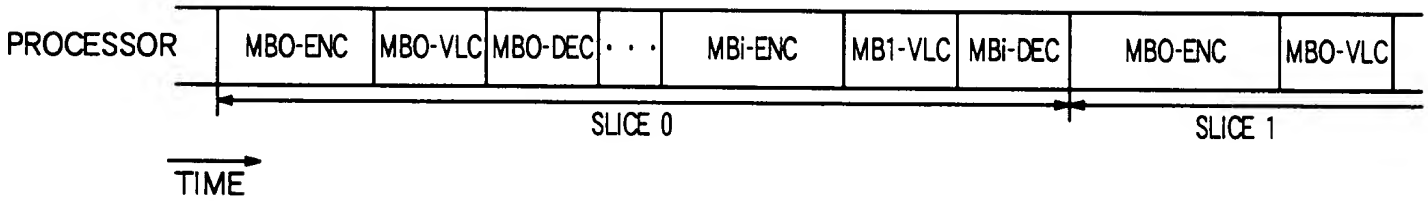

PROCESSOR
MB0-ENC
MB0-VLC
MB0-DEC
· · ·
MBi-ENC
MB1-VLC
MBi-DEC
MB0-ENC
MB0-VLC
SLICE 0
SLICE 1
TIME

FIG. 6

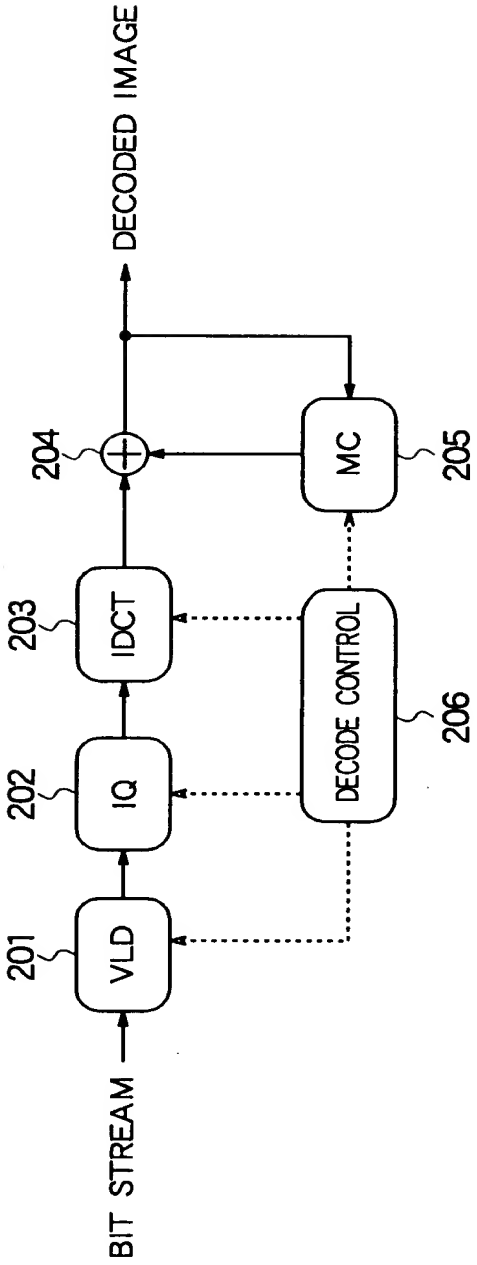

BIT STREAM
VLD
201
IQ
202
IDCT
203
204
DECODED IMAGE
MC
205
DECODE CONTROL
206
200

FIG. 7

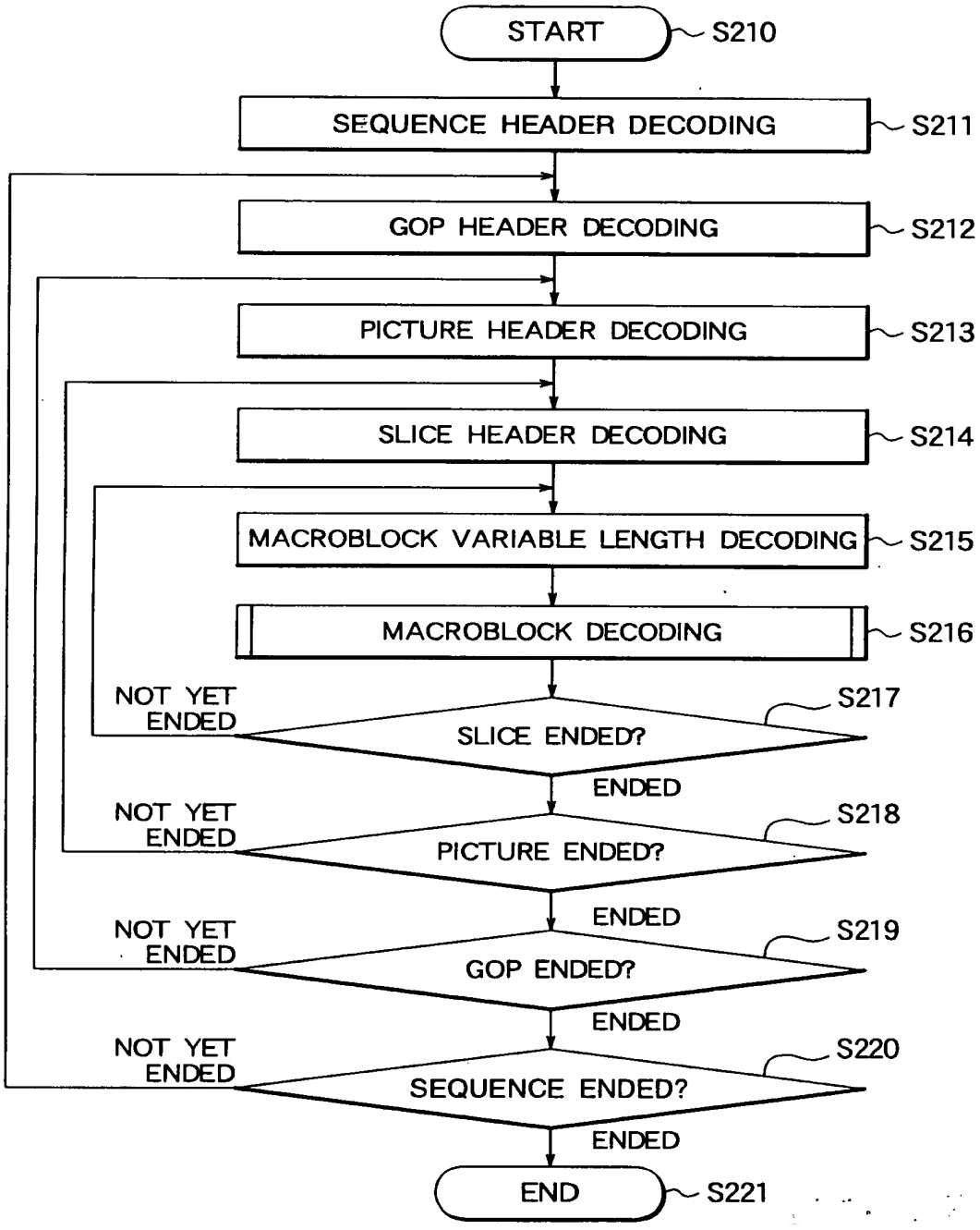

START
S210
SEQUENCE HEADER DECODING
S211
GOP HEADER DECODING
S212
PICTURE HEADER DECODING
S213
SLICE HEADER DECODING
S214
MACROBLOCK VARIABLE LENGTH DECODING
S215
MACROBLOCK DECODING
S216
NOT YET ENDED
SLICE ENDED?
S217
ENDED
NOT YET ENDED
PICTURE ENDED?
S218
ENDED
NOT YET ENDED
GOP ENDED?
S219
ENDED
NOT YET ENDED
SEQUENCE ENDED?
S220
ENDED
END
S221

FIG. 8

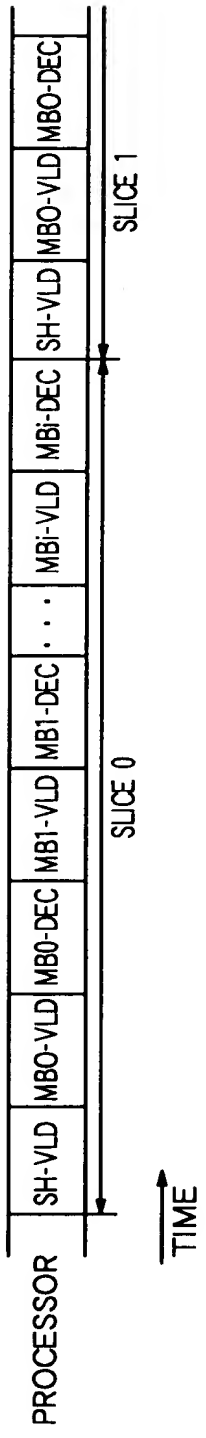
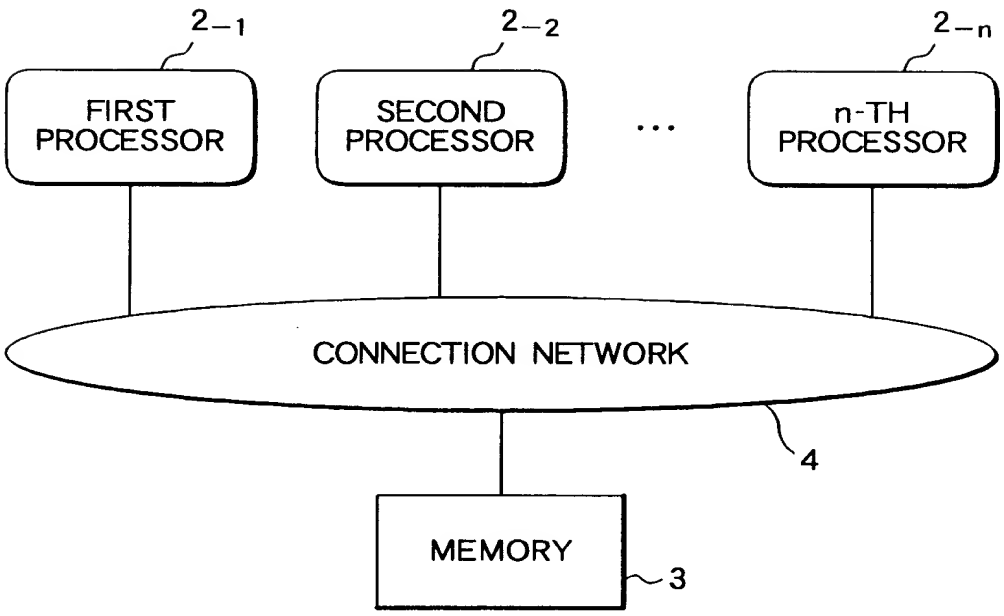

PROCESSOR
SH-VLD
MB0-VLD
MB0-DEC
MB1-VLD
MB1-DEC
. . .
MBi-VLD
MBi-DEC
SH-VLD
MB0-VLD
MB0-DEC
SLICE 0
SLICE 1
TIME

FIG. 9


2-1
2-2
2-n
FIRST PROCESSOR
SECOND PROCESSOR
...
n-TH PROCESSOR
CONNECTION NETWORK
4
MEMORY
3

1, 9

FIG. 10

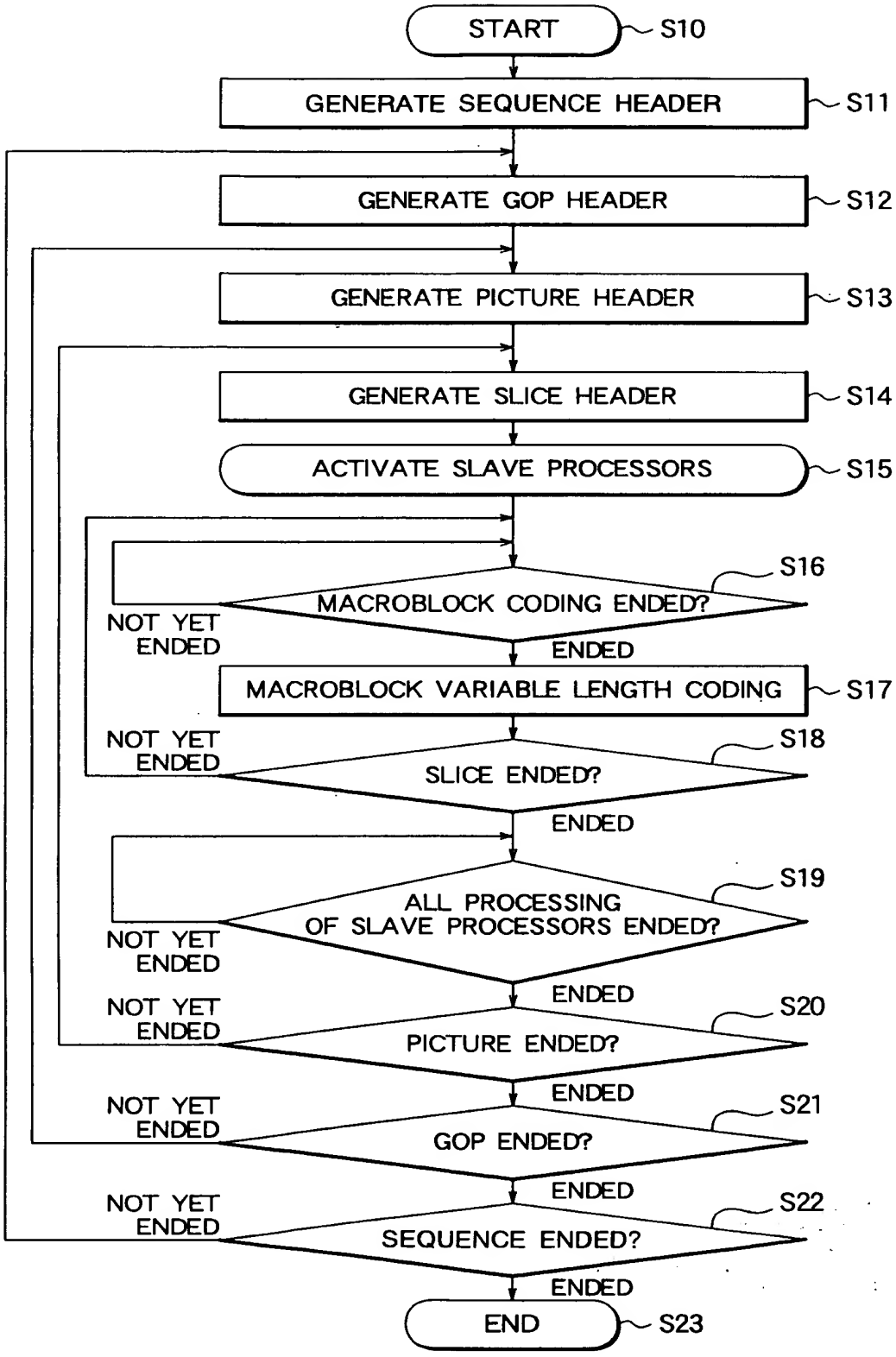

START
S10
GENERATE SEQUENCE HEADER
S11
GENERATE GOP HEADER
S12
GENERATE PICTURE HEADER
S13
GENERATE SLICE HEADER
S14
ACTIVATE SLAVE PROCESSORS
S15
MACROBLOCK CODING ENDED?
S16
NOT YET ENDED
ENDED
MACROBLOCK VARIABLE LENGTH CODING
S17
NOT YET ENDED
SLICE ENDED?
S18
ENDED
ALL PROCESSING OF SLAVE PROCESSORS ENDED?
S19
NOT YET ENDED
ENDED
NOT YET ENDED
PICTURE ENDED?
S20
ENDED
NOT YET ENDED
GOP ENDED?
S21
ENDED
NOT YET ENDED
SEQUENCE ENDED?
S22
ENDED
END
S23

FIG. 11

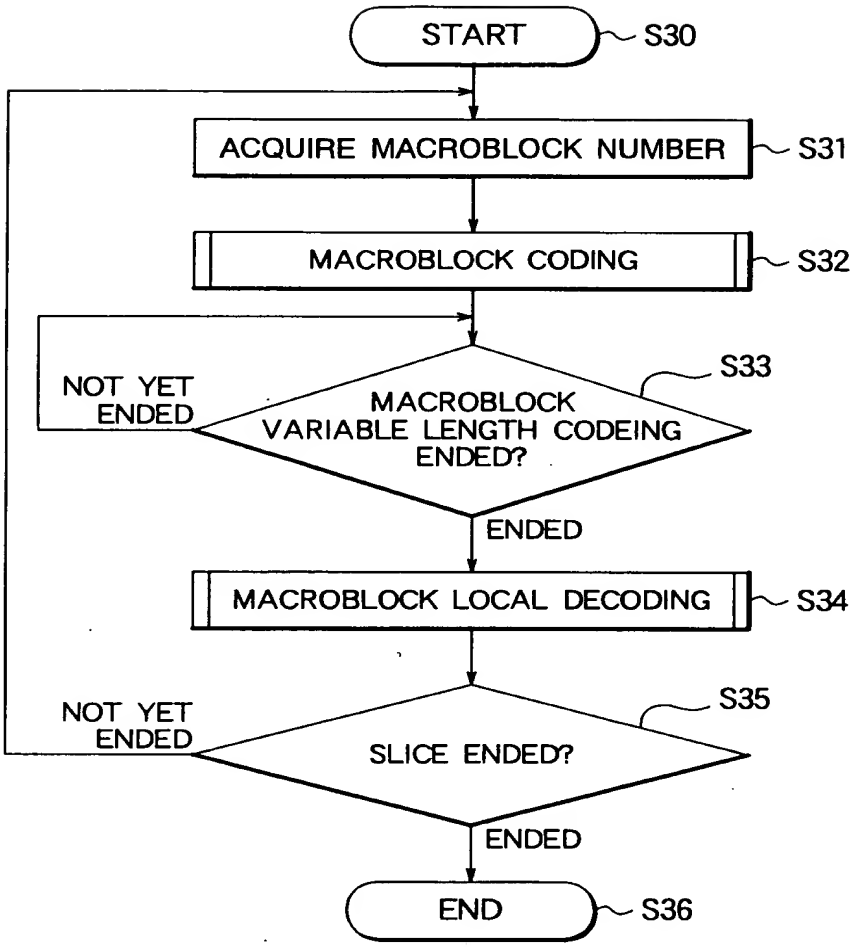

START
S30
ACQUIRE MACROBLOCK NUMBER
S31
MACROBLOCK CODING
S32
NOT YET ENDED
MACROBLOCK VARIABLE LENGTH CODEING ENDED?
S33
ENDED
MACROBLOCK LOCAL DECODING
S34
NOT YET ENDED
SLICE ENDED?
S35
ENDED
END
S36

FIG. 12

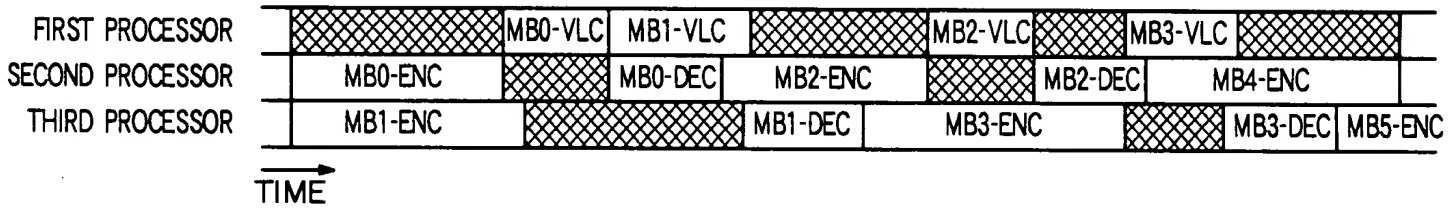

FIRST PROCESSOR
SECOND PROCESSOR
THIRD PROCESSOR
MB0-VLC
MB1-VLC
MB2-VLC
MB3-VLC
MB0-ENC
MB0-DEC
MB2-ENC
MB2-DEC
MB4-ENC
MB1-ENC
MB1-DEC
MB3-ENC
MB3-DEC
MB5-ENC
TIME

FIG. 13

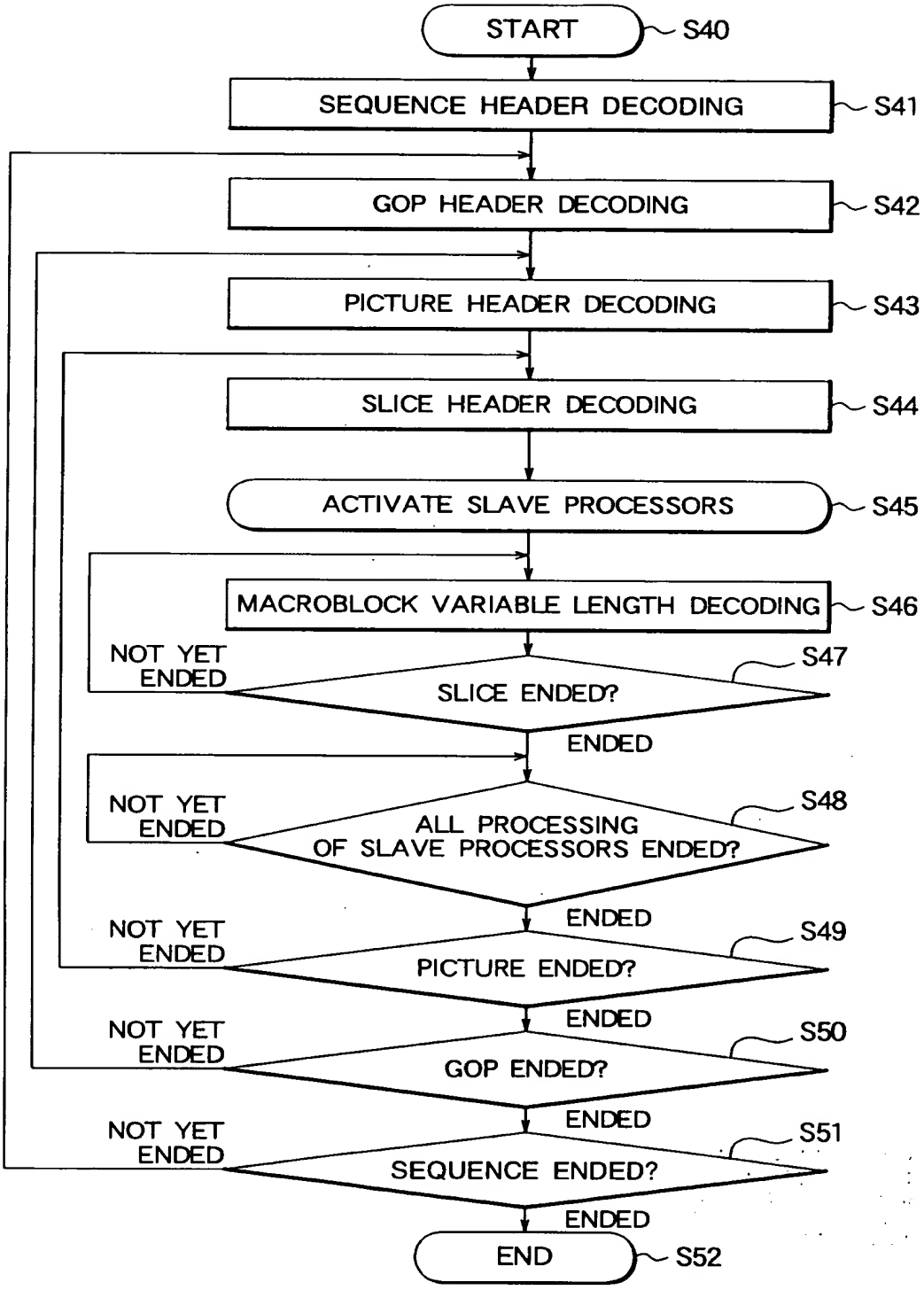

START
S40
SEQUENCE HEADER DECODING
S41
GOP HEADER DECODING
S42
PICTURE HEADER DECODING
S43
SLICE HEADER DECODING
S44
ACTIVATE SLAVE PROCESSORS
S45
MACROBLOCK VARIABLE LENGTH DECODING
S46
NOT YET ENDED
SLICE ENDED?
S47
ENDED
NOT YET ENDED
ALL PROCESSING OF SLAVE PROCESSORS ENDED?
S48
ENDED
NOT YET ENDED
PICTURE ENDED?
S49
ENDED
NOT YET ENDED
GOP ENDED?
S50
ENDED
NOT YET ENDED
SEQUENCE ENDED?
S51
ENDED
END
S52

FIG. 14

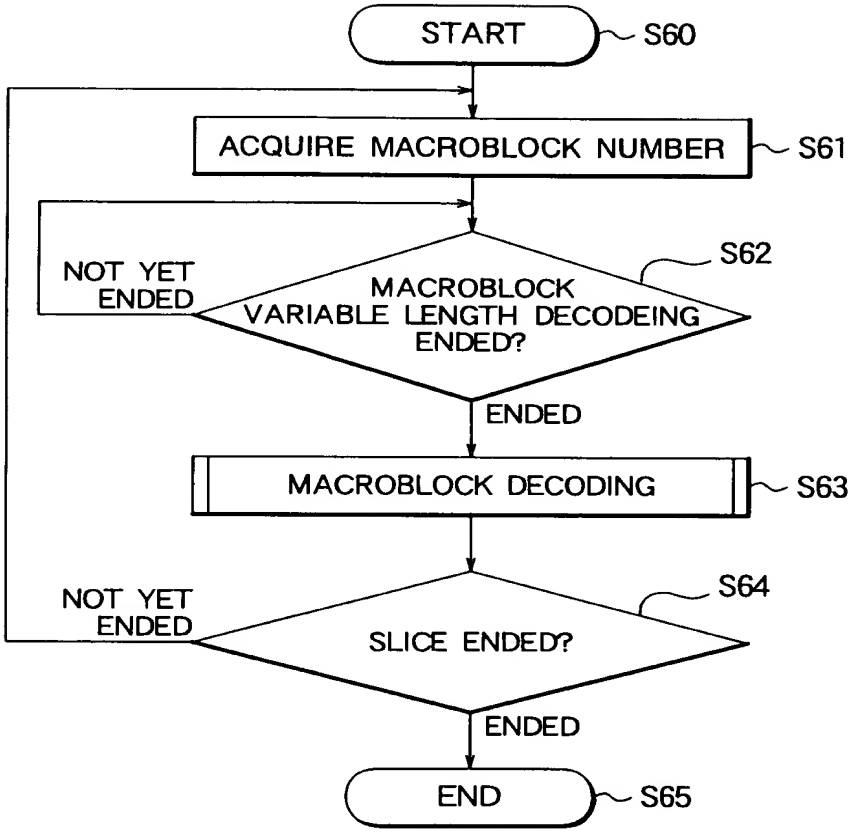

START
S60
ACQUIRE MACROBLOCK NUMBER
S61
S62
NOT YET ENDED
MACROBLOCK VARIABLE LENGTH DECODEING ENDED?
ENDED
MACROBLOCK DECODING
S63
S64
NOT YET ENDED
SLICE ENDED?
ENDED
END
S65

FIG. 15

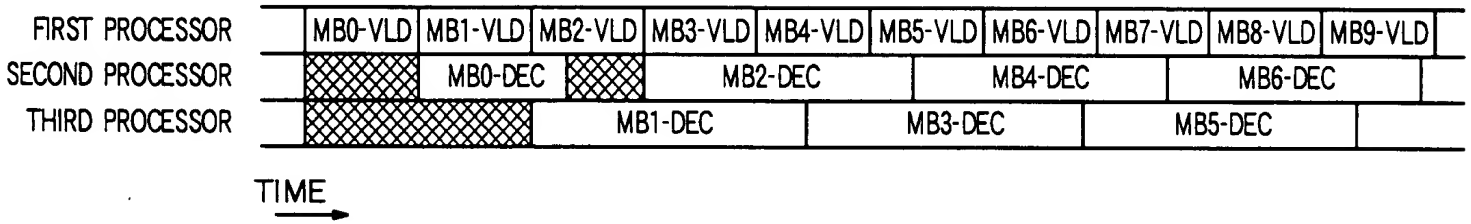

FIRST PROCESSOR
SECOND PROCESSOR
THIRD PROCESSOR
MB0-VLD
MB1-VLD
MB2-VLD
MB3-VLD
MB4-VLD
MB5-VLD
MB6-VLD
MB7-VLD
MB8-VLD
MB9-VLD
MB0-DEC
MB2-DEC
MB4-DEC
MB6-DEC
MB1-DEC
MB3-DEC
MB5-DEC
TIME

FIG. 16

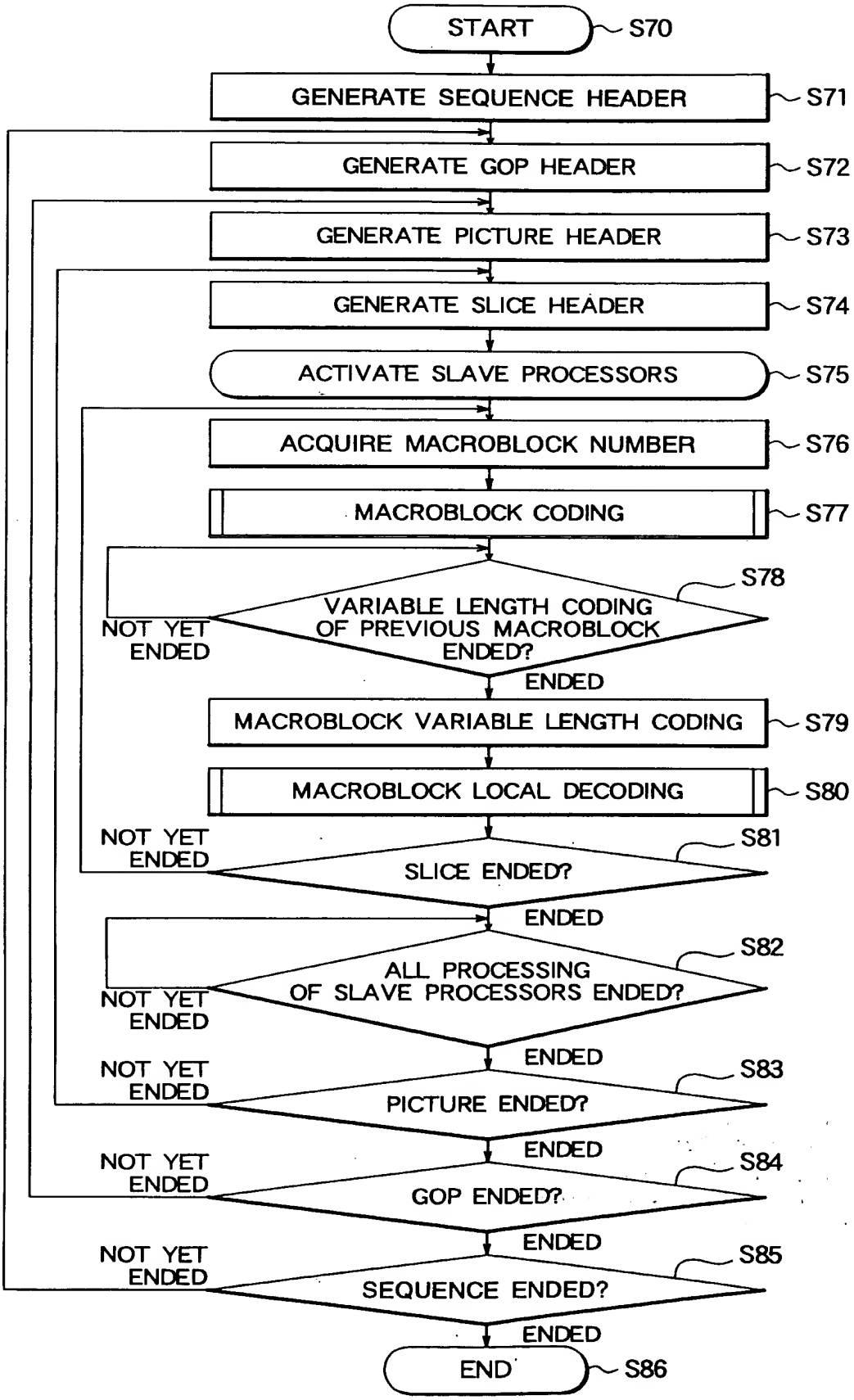

START
S70
GENERATE SEQUENCE HEADER
S71
GENERATE GOP HEADER
S72
GENERATE PICTURE HEADER
S73
GENERATE SLICE HEADER
S74
ACTIVATE SLAVE PROCESSORS
S75
ACQUIRE MACROBLOCK NUMBER
S76
MACROBLOCK CODING
S77
VARIABLE LENGTH CODING OF PREVIOUS MACROBLOCK ENDED?
S78
NOT YET ENDED
ENDED
MACROBLOCK VARIABLE LENGTH CODING
S79
MACROBLOCK LOCAL DECODING
S80
SLICE ENDED?
S81
NOT YET ENDED
ENDED
ALL PROCESSING OF SLAVE PROCESSORS ENDED?
S82
NOT YET ENDED
ENDED
PICTURE ENDED?
S83
NOT YET ENDED
ENDED
GOP ENDED?
S84
NOT YET ENDED
ENDED
SEQUENCE ENDED?
S85
NOT YET ENDED
ENDED
END
S86

FIG. 17

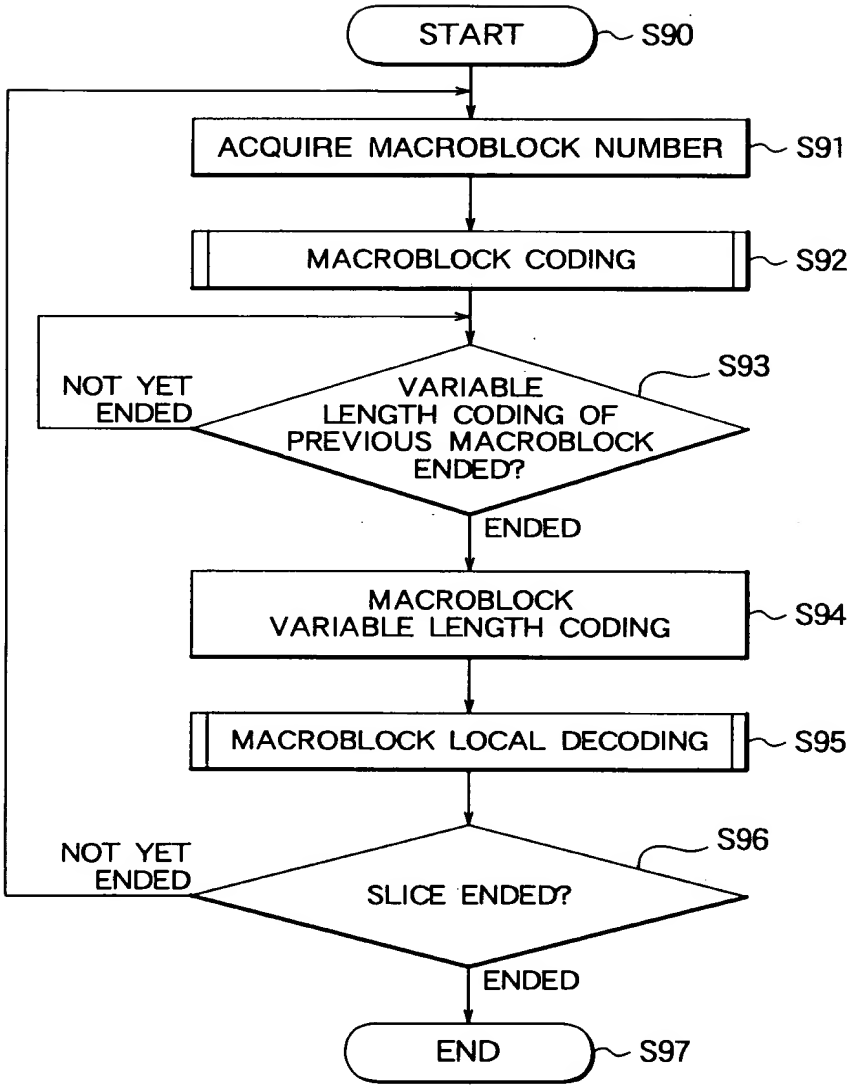

START
S90
ACQUIRE MACROBLOCK NUMBER
S91
MACROBLOCK CODING
S92
S93
NOT YET ENDED
VARIABLE LENGTH CODING OF PREVIOUS MACROBLOCK ENDED?
ENDED
MACROBLOCK VARIABLE LENGTH CODING
S94
MACROBLOCK LOCAL DECODING
S95
S96
NOT YET ENDED
SLICE ENDED?
ENDED
END
S97

FIG. 18

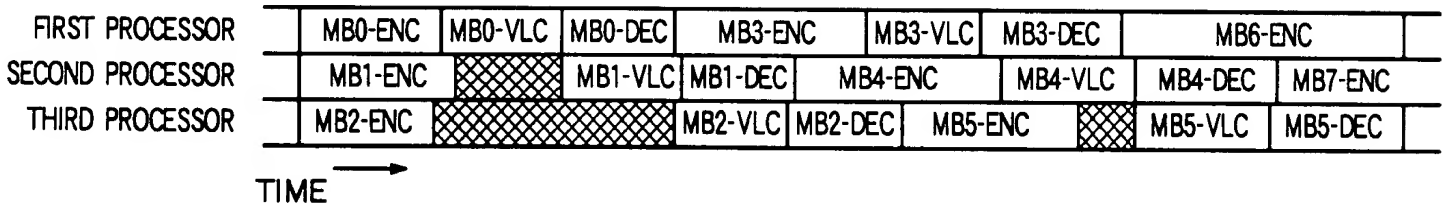

FIRST PROCESSOR
SECOND PROCESSOR
THIRD PROCESSOR
MB0-ENC
MB0-VLC
MB0-DEC
MB3-ENC
MB3-VLC
MB3-DEC
MB6-ENC
MB1-ENC
MB1-VLC
MB1-DEC
MB4-ENC
MB4-VLC
MB4-DEC
MB7-ENC
MB2-ENC
MB2-VLC
MB2-DEC
MB5-ENC
MB5-VLC
MB5-DEC
TIME

FIG. 19

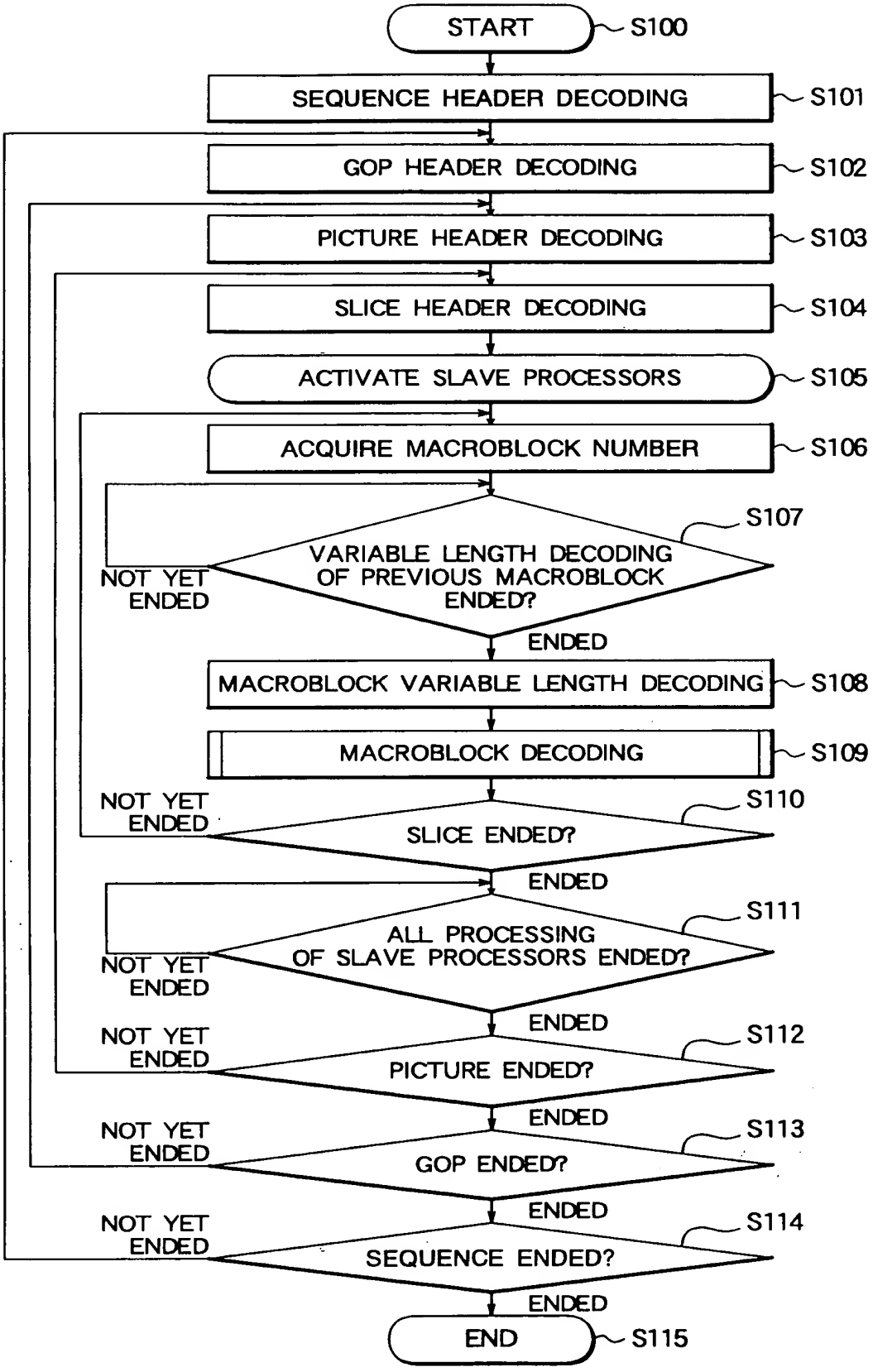

START
S100
SEQUENCE HEADER DECODING
S101
GOP HEADER DECODING
S102
PICTURE HEADER DECODING
S103
SLICE HEADER DECODING
S104
ACTIVATE SLAVE PROCESSORS
S105
ACQUIRE MACROBLOCK NUMBER
S106
VARIABLE LENGTH DECODING OF PREVIOUS MACROBLOCK ENDED?
S107
NOT YET ENDED
ENDED
MACROBLOCK VARIABLE LENGTH DECODING
S108
MACROBLOCK DECODING
S109
NOT YET ENDED
SLICE ENDED?
S110
ENDED
ALL PROCESSING OF SLAVE PROCESSORS ENDED?
S111
NOT YET ENDED
ENDED
NOT YET ENDED
PICTURE ENDED?
S112
ENDED
NOT YET ENDED
GOP ENDED?
S113
ENDED
NOT YET ENDED
SEQUENCE ENDED?
S114
ENDED
END
S115

FIG. 20

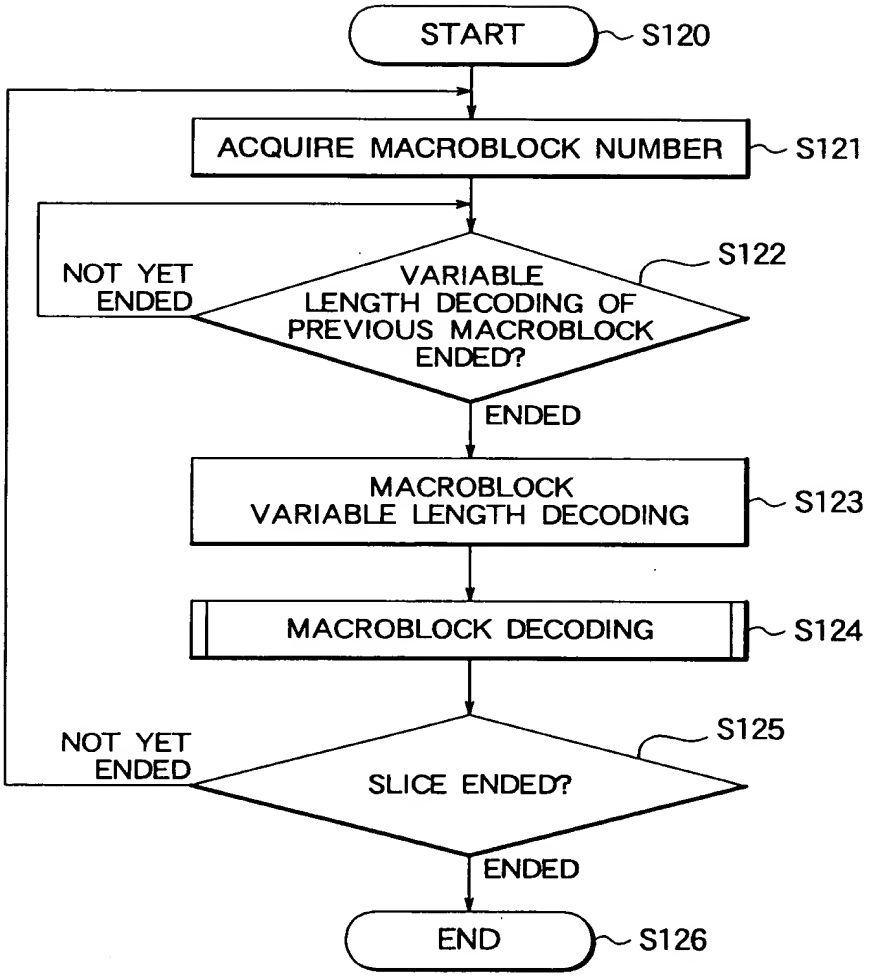
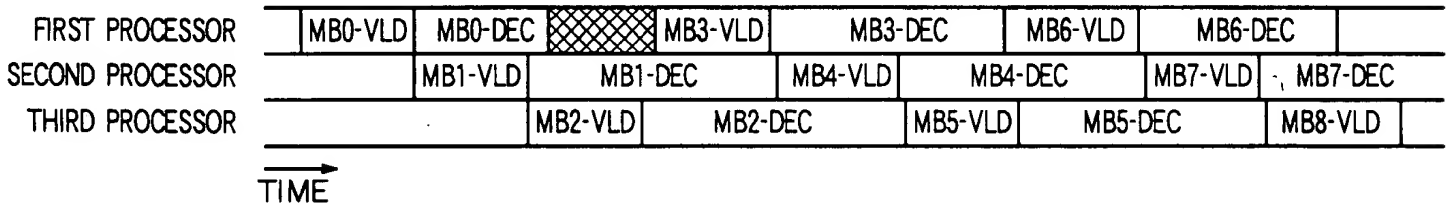

START
S120
ACQUIRE MACROBLOCK NUMBER
S121
NOT YET ENDED
VARIABLE LENGTH DECODING OF PREVIOUS MACROBLOCK ENDED?
S122
ENDED
MACROBLOCK VARIABLE LENGTH DECODING
S123
MACROBLOCK DECODING
S124
NOT YET ENDED
SLICE ENDED?
S125
ENDED
END
S126

FIG. 21


FIRST PROCESSOR
SECOND PROCESSOR
THIRD PROCESSOR
MB0-VLD
MB0-DEC
MB3-VLD
MB3-DEC
MB6-VLD
MB6-DEC
MB1-VLD
MB1-DEC
MB4-VLD
MB4-DEC
MB7-VLD
MB7-DEC
MB2-VLD
MB2-DEC
MB5-VLD
MB5-DEC
MB8-VLD
TIME